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Subatomic Vortices

by

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It is sometimes said that any theory which purports to tell us what electricity and the elementary particles of matter really are, stands condemned at the outset. Although it is true that we cannot make something out of nothing, still we do not need to begin with a complex array of protons, electrons and neutrons as our starting point. These subatomic particles and their associated fields of force may themselves consist of selfsustaining forms of motion, such as vortex motion, in a hypothetical ether having only certain general properties, such as inertia and fluidity, but no specific internal structure or molecules with atomic oscillators. Any fluid medium that is capable of supporting wave motion should also be capable of supporting vortex motion, and it would seem inconsistent, after recognizing light as a wave motion in the ether, to refuse to recognize the elementary particles of matter as vortex motion in the same ether.

The distinguishing characteristic of all elementary particles of matter is their *localized persistence of individuality*, and this is also the distinguishing characteristic of vortex motion. Wave motion is not localized like the elementary particles of matter, nor does it have individuality within the full meaning of that term. For instance when a wave is distorted it will not of its own accord revert to its original form but will travel in the directions of the normals to the new wave front, there being no persistence of individuality or memory of the original form of the wave. On the other hand if a vortex ring is distorted from the circular into the elliptical form, it will spontaneously revert into the original circular form. The vortex ring therefore does have persistence of individuality and memory of its original form. Although it is true that a spring or rubber band will spontaneously revert into its original

form, nevertheless such spontaneous action of a resilient material body is not an *explanation* of its resiliency but only an *expression* thereof. The behavior of a resilient material body is merely the combined action of its constituent atoms and molecules and therefore depends on the resiliency of the material of which it is made whereas the resiliency of a vortex ring does not depend on the nature of its material but is an inherent characteristic of the form of the motion itself.



A vortex ring will not only tend to maintain its circular form but will also dynamically and resiliently maintain its dimensions and proportions. There is obviously a lower limit to the possible over-all diameter of the ring because after the opening at the center is completely closed, the ring cannot become any smaller. The inevitable crowding of the ether in the region of this central opening will however prevent any such complete closure of the ring but will tend to expand the ring to a larger over-all diameter. In opposition to this expansive force there are other forces acting in the radially inward direction and tending to compress or contract the ring to a smaller diameter. One of these inwardly acting forces is caused by the impacts of external ether currents against the outer periphery of the ring. Another such force is caused by the centrifugal forces inside the rotating filament. The immediate result of such centrifugal forces will be to make the filament thicker, but since its volume must remain constant, any thickening of the filament must be accompanied by an equivalent reduction of the over-all ring diameter. The ring will therefore not expand indefinitely but will acquire and maintain definite size and proportions.

Physicists usually try to summarily dismiss the new vortex atom theory with the comment that it is merely a revival of the 19th century theory of Lord Kelvin which proved to be a failure. The broad concept of vortex atoms did not however originate with Kelvin but can be traced at least as far back as 1674 when Nicholas Malebranche stated in his "Reserche de la Verite" that "la matiere subtile ou etheree est necessairement composee de petits turbillons". Since the new vortex theory deals primarily with the vortex structures of the subatomic particles (protons, electrons and neutrons) it obviously cannot be the same as Kelvin's theory because these subatomic particles were not known during the time of Kelvin. These subatomic

particles are very specific in their behaviors and must therefore be presumed to have specific structures because it is a universal rule, without any exception, that specific behavior can be explained only on the basis of specific structure. As long as no other type of structure has ever been suggested for these subatomic particles, we must proceed with the assumption that they have vortex structures.

The ether according to Kelvin's theory was not only frictionless but also devoid of any sort of viscosity so that adjacent vortices could have no coordinating effect upon one another whereas in this new theory the vortices are in a viscid but nonfrictional ether similar to that contemplated by Maxwell, Stokes and Fricke. The effect of such viscosity on the distribution of velocities in and around the vortex rings is shown in Fig. 1. In the Kelvin vortex rings the velocity of circulation of the ether would presumably be proportional to the radial distance from the center of rotation but would suddenly drop to zero at the surface of the ring, whereas in the 20th century vortex rings the velocity at the surface of the ring (assuming that it has a definite surface) does not drop suddenly to zero but tapers off gradually in the outward direction. This external circulation is directly involved in all physical and chemical activity, and when it becomes too crowded, the atom bursts to pieces with the liberation of much energy as in the splitting of the uranium atom.

One of the objections which was raised against the 19th century vortex theory was that a vortex ring in a frictionless ether could never be started, but that if it ever did come into existence, then it never could be destroyed. This would probably be true of the Kelvin vortex rings, but could not be true of vortex rings of the new 20th century ether or in any fluid which has even a slight degree of viscosity. Any sudden impulse in such a fluid would be likely to form, at least temporarily,



a vortex ring therein. According to A. Betz (1950) such a vortex ring would be produced by the rolling up of a shear surface in the form of a cylindrical sheet.

Another effect of such viscosity is to cause adjacent vortex rings to exert a

coordinating effect upon each other so as to bring them into axial alignment and rolling contact whenever possible, which Kelvin's 19th century vortex rings in a nonviscid ether would not do. If we assume that face-to-face rolling contact is a necessary and sufficient condition for structural stability, then with two vortex rings it will be possible to produce two different stable structures as shown in Fig. 2 with the adjacent sides of the two rings moving either inwardly or outwardly but not in opposite directions. These two structures will also have different external circulations, the one being the reverse but not the equivalent of the other. This immediately suggests a much needed structural basis for protons and electrons and for the electric fields associated therewith.

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